



Economic and Social Commission for Asia and the Pacific

Committee on Information and Communications Technology,
Science, Technology and Innovation

First session

Bangkok, 5-7 October 2016

Item 2 (a) of the provisional agenda*

**Policy issues for information and communications technology:
towards the Asia-Pacific information superhighway**

Towards the Asia-Pacific information superhighway

Note by the secretariat

Summary

The Economic and Social Commission for Asia and the Pacific (ESCAP), in resolution 71/10, decided to create the open-ended Working Group on the Asia-Pacific Information Superhighway. The 1st and 2nd meetings of the Working Group were held in 2015 and 2016 respectively. At its 1st meeting, the Working Group agreed that a master plan for the Asia-Pacific information superhighway and regional cooperation framework document would be developed. The Steering Group was formed to carry out that task, and the Master Plan and Regional Cooperation Framework Document were developed and reviewed at the 2nd meeting of the Working Group, in August 2016.

In support of efforts to achieve the Sustainable Development Goals and the goals of the World Summit on the Information Society, the Asia-Pacific information superhighway is a strategic regional connectivity initiative to stimulate the digital economy, narrow the digital divide and support various regional connectivity initiatives, such as trade and transport and socioeconomic applications, while encouraging innovation. The importance has been recognized not only by Governments but also by various stakeholders, such as the private sector, civil society and research institutes across the region.

This document summarizes the main activities undertaken in accordance with resolution 71/10, proposes the way forward and highlights issues for consideration by the Committee on Information and Communications Technology, Science, Technology and Innovation.

* E/ESCAP/CICTSTI(1)/L.1.

I. Introduction

1. Information and communications technology (ICT), in particular broadband technology, has increasingly been seen as an alternative, and in some cases an efficient and effective solution, to overcoming physical barriers, lack of resources and infrastructure and access to information, knowledge and services worldwide. At the same time, ICT plays multiple strategic roles as the meta-infrastructure, growth-industry basis for the expanding digital economy and, most importantly, a critical development enabler that contributes towards achieving the Sustainable Development Goals.

2. ICT is a foundation for promoting sustainable development, while being a growth sector that contributes to economic growth. The Internet, for instance, has transformed the way we live by providing instant connectivity to the remotest areas of the world and transmitting data, information and knowledge in multiple formats and languages over fibre-optic cables, wireless networks or satellites. Being highly versatile, ICT now permeates every facet of our lives by enabling trillions of dollars of financial transactions every day, connecting weather forecasts to agricultural production and disaster management, managing intelligent transport, controlling epidemics, advancing climate change adaptation and promoting new businesses and even industries. With the Internet of things and cloud computing, devices will be connected to each other and transmit data, enabling unparalleled opportunities for vast data collection and analysis, while providing ICT capabilities anywhere in the world.

3. In addition, ICT-enabled financial, transport and trade facilitation infrastructure will be essential to encouraging innovations and developing an inclusive digital economy in the region. Broadband-enabled technologies, such as smart grids, intelligent transport systems, integrated water management systems and single windows, are some of the efficiencies that will drive growth in all sectors of the economy. This emerging infrastructure is built on broadband networks and facilitates the movements of goods, services, people and money across countries, thereby acting as building blocks of the emerging digital economy.

4. The Internet also plays an important role in modernizing government services and enhancing the quality of interactions and accountability between public administrations, citizens and businesses, while improving efficiency, effectiveness and transparency. In May 2016, the Copenhagen Consensus Center published a report of a project in which it conducted a cost-benefit analysis of various development interventions in Bangladesh.¹ The report found that of more than 70 development activities, the most cost-efficient development interventions were ICT-related: e-procurement (\$663 in benefits for every \$1 spent), followed by digitization of land records (\$619 for every \$1). Services provided at Union Digital Centers and broadband expansion in Bangladesh were also listed as having had a positive impact. If aggregated at the regional level, the developmental benefits would be substantial. These are only some of the potential benefits of ICT in general and broadband Internet in particular that will make a tangible difference to the lives of people in the region.

¹ See a summary of the project at www.economist.com/news/finance-and-economics/21698302-ambitious-attempt-work-out-best-use-scarce-resources-how-spend-it.

5. Against this background, ICT has emerged as an indispensable development enabler that contributes to and accelerates the achievement of the Sustainable Development Goals. At the same time, the Sustainable Development Goals have direct and indirect ICT-related targets. Target 9.1 (Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all) and means of implementation 9.c (Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020) are some of the direct ICT-related targets.²

6. The indirect contributions of ICT to other Sustainable Development Goals targets take various forms, including development-accelerating applications and initiatives. One such application is mobile money, which has been transforming the way financial services are provided to the poor and expanding service coverage not only in middle-income countries, such as the Philippines, but also in other parts of the region. Mobile money and mobile banking constitute an emerging tool to facilitate financial transactions among a much wider segment of the population for a lower cost, not only within the country but also across national boundaries, thereby facilitating financial inclusion.

7. With the rapid expansion of mobile devices and connectivity, as highlighted in the note by the secretariat entitled “Asia-Pacific information superhighway: for inclusive and seamless connectivity”³ for the seventy-second session of the Commission in May 2016 and in the following sections of the present note, the landscape of ICT for development has dramatically changed since the last session of the Committee on Information and Communications Technology was organized in 2014. The World Economic Forum published a report in 2016 that highlights that: (a) the digital revolution changes the nature of innovation, based on new technologies and business models; (b) companies need to innovate continuously; (c) businesses and Governments have not yet fully capitalized on the digital opportunities; and (d) a new digital economy requires innovations in governance and regulations.⁴ Taking these points into account, the Forum’s Networked Readiness Index 2016 ranks Singapore as number one worldwide, followed in the ESCAP region by: Japan (10); Hong Kong, China (12); the Republic of Korea (13); New Zealand (17); and Australia (18).

8. The aim of this note is to discuss the progress made in developing affordable and reliable broadband in the region through the Asia-Pacific information superhighway, in particular within the overall objective of achieving the Sustainable Development Goals. It also contains analyses on emerging ICT trends and characteristics of the digital divide in Asia and the Pacific.

² A more detailed description of the ICT-related targets and their linkage to the action lines of the World Summit on the Information Society can be found in the note by the secretariat on the regional review of the implementation of the World Summit on the Information Society action lines (E/ESCAP/CICSTI(1)/4).

³ E/ESCAP/72/17.

⁴ World Economic Forum, *The Global Information Technology Report 2016: Innovating the Digital Economy* (Geneva, 2016). Available from www.weforum.org/reports/the-global-information-technology-report-2016.

II. Progress towards the Asia-Pacific information superhighway

9. In Commission resolution 69/10 in 2013, member States recognized the need to promote the exchange of best practices and experiences related to the development of ICT infrastructure, including in-depth analysis of the policy and regulatory barriers that could impede efforts to synchronize the deployment of ICT infrastructure across the region in a seamless manner.

10. Furthermore, in its resolution 71/10, the Commission decided to establish the open-ended Working Group on the Asia-Pacific Information Superhighway to agree on principles and norms and develop a master plan, covering both the policy and technical aspects of the Asia-Pacific information superhighway, and a regional cooperation framework, and that consideration should be given to amending the Intergovernmental Agreement on the Trans-Asian Railway Network and the Intergovernmental Agreement on the Asian Highway Network. It further requested the secretariat to promote the sharing of good practices and lessons learned in ICT for disaster risk reduction and e-resilience, support the work of the Working Group, undertake research and analysis, build partnerships and collaboration with international and regional organizations and harness cross-sectoral synergies.

11. Accordingly, the 1st meeting of the Working Group was held in Incheon, Republic of Korea, on 1 and 2 September 2015.⁵ At that meeting, which was attended by 19 member countries and representatives from the private sector, civil society and think tanks, the Working Group decided to:⁶

(a) Draft a master plan encompassing the long-term vision, targeted goals, specific activities and milestones with regard to the four pillars of the Asia-Pacific information superhighway;

(b) Draft a regional cooperation framework for the Asia-Pacific information superhighway that covers the four pillars;

(c) Agree upon aspects relating to its own structure and operations.

III. Activities implemented by and in relation to the Working Group and Steering Group on the Asia-Pacific Information Superhighway

12. Subsequently, upon the decision at the meeting of the Working Group, the Steering Group on Asia-Pacific Information Superhighway was established.⁷ With members consisting of multi-stakeholder representatives with policy and technical expertise, the primary objective of the Steering Group was to draft the master plan for the Asia-Pacific Information Superhighway and the regional cooperation framework document, incorporating the above requirements.

13. The Steering Group's discussions on the master plan and regional cooperation framework document started in June 2016 online under the

⁵ See www.unescap.org/events/first-meeting-working-group-asia-pacific-information-superhighway.

⁶ See www.unescap.org/sites/default/files/Outcome%20Document%20Sept%202015.pdf.

⁷ See www.unescap.org/sites/default/files/Ap-IS%20SG%20ToR.pdf.

chairmanship of the National Information Society Agency of the Republic of Korea. The outcome documents were presented to the 2nd meeting of the Working Group, held in China on 29 and 30 August 2016.⁸ The meeting endorsed both the Master Plan for the Asia-Pacific Information Superhighway and the Asia-Pacific Information Superhighway Regional Cooperation Framework Document⁹ and discussed recommendations to be presented to the first session of the Committee on Information and Communications Technology, Science, Technology and Innovation.

14. In support of expanding partnerships and collaboration with various stakeholders, an Asia-Pacific information superhighway private-sector consultative meeting was organized with the participation of the region's leading telecommunications operators, think tanks, research institutes and financial institutions, such as the International Finance Corporation.¹⁰ The meeting was instrumental in gaining insights and discussing the challenges and opportunities that the private sector faces so as to ensure that their views were reflected in the Asia-Pacific information superhighway design.

15. Furthermore, the secretariat coordinated with the International Telecommunication Union and the Asia-Pacific Telecommunity to organize the 19th Meeting of the Regional Inter-agency Working Group on Information and Communications Technologies on 15 December 2015.¹¹ As the only regional platform for agency coordination in the area of ICT and as a follow-up to the deliberations of the fourth session of the Committee on Disaster Risk Reduction,¹² the meeting focused on the emerging topic of ICT for disaster risk reduction and how agencies could cooperate, synergize efforts and produce better development outcomes.

16. One of the initiatives presented during that inter-agency meeting was the Asia-Pacific Gateway on disaster risk reduction and ICT on how agencies can systematically share information and initiatives online.¹³ Since then, in order to conform to the United Nations ICT policy, the Gateway has been updated and upgraded with additional features of online communities. It aims to provide policymakers and relevant stakeholders with a one-stop portal containing a spectrum of resources and tools to promote ICT for development and disaster risk reduction in Asia and the Pacific, while providing a space for discussions and dialogues among policy- and decision makers as well as partners for the advancement of the Asia-Pacific information superhighway.

⁸ See www.unescap.org/events/second-session-working-group-asia-pacific-information-superhighway.

⁹ E/ESCAP/CICTSTI(1)/2 and E/ESCAP/CICTSTI(1)/3.

¹⁰ See www.unescap.org/events/asia-pacific-information-superhighway-ap-private-sector-consultative-meeting.

¹¹ See www.unescap.org/events/19th-meeting-regional-interagency-working-group-iwg-information-and-communication.

¹² See www.unescap.org/events/committee-disaster-risk-reduction-fourth-session.

¹³ See <http://drrgateway.net/>.

IV. Deepening understanding of the four pillars of the Asia-Pacific information superhighway

17. As a pillar of regional connectivity, the Asia-Pacific information superhighway initiative aims to be a catalyst to develop seamless regional broadband networks which improve affordability, reliance, resilience and coverage and thereby address the causes of digital divides, develop the Internet ecosystem, support the implementation of the Sustainable Development Goals and stimulate the digital economy in Asia and the Pacific. As described in the note by the secretariat³ for the seventy-second session of the Commission in May 2016, the Asia-Pacific information superhighway is designed around four pillars: (a) strengthening the regional broadband infrastructure; (b) establishing regional Internet traffic and network management systems and policies; (c) enhancing ICT infrastructure resilience; and (d) providing inclusive access to broadband Internet.

18. Around the four pillars of the Asia-Pacific information superhighway, the secretariat, in partnership with the region's leading think tanks and research institutes, undertook research and analyses to deepen understanding of emerging trends and policy, regulatory and technological gaps, opportunities and requirements. Some of the reports were already featured in the note by the secretariat for the seventy-second session of the Commission,³ while the findings of the other research and analyses are available on the ESCAP website.¹⁴

V. The state of information and communications technology: salient features of the digital divide in Asia and the Pacific

19. Despite the significant progress made by some advanced economies in the region, the nature and scope of the digital divide have changed. Unaddressed, this disparity between advanced and developing economies will lead to exacerbated gaps in ICT access and capabilities and which will subsequently impact development opportunities, as a result of the very nature of ICT as the meta-infrastructure and a development enabler. For these reasons, the growing digital divide and the need for availability, affordability, reliability and coverage of broadband access in the ESCAP region should be considered a matter of urgent priority.

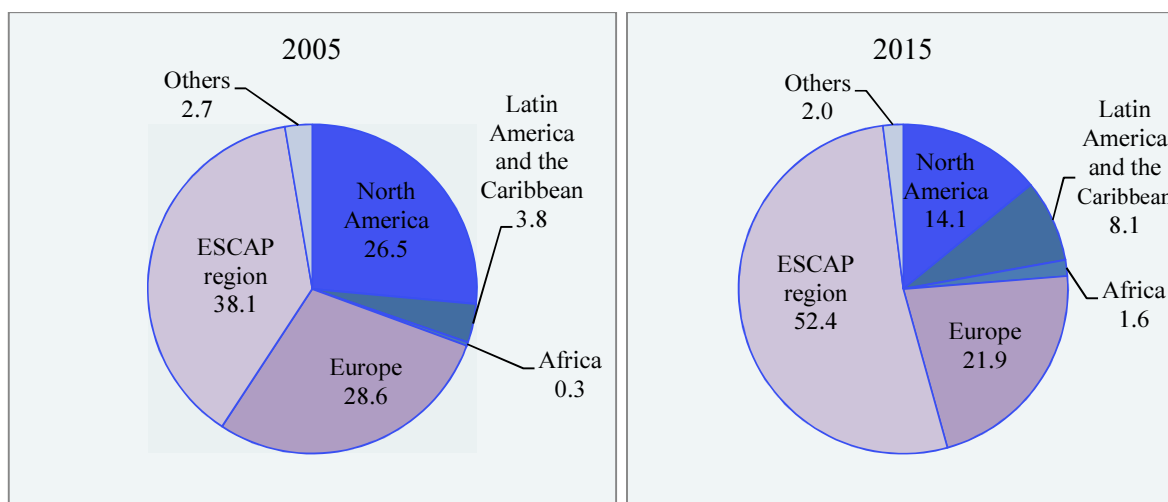
20. The secretariat recently updated the analyses on the salient features and characteristics of the region's digital divide, using the 2015 data set made available by the International Telecommunication Union, as summarized below.

A. More than half of global fixed broadband subscriptions

21. For the first time, over 52 per cent of the global fixed broadband subscribers come from ESCAP member countries, followed by Europe (21.9 per cent) and North America (14.1 per cent), according to the latest data from the International Telecommunication Union. This shows a dramatic increase from 2005, when ESCAP subscriptions constituted 38.1 per cent of the global total fixed broadband subscriptions, followed by Europe (28.6 per cent) and North America (26.5 per cent) (see figure I).

¹⁴ See the relevant documents on ICT for e-resilience, transport and sustainable development at www.unescap.org/resources.

Figure I
Global fixed broadband subscriptions in 2005 and 2015
 (Percentage)



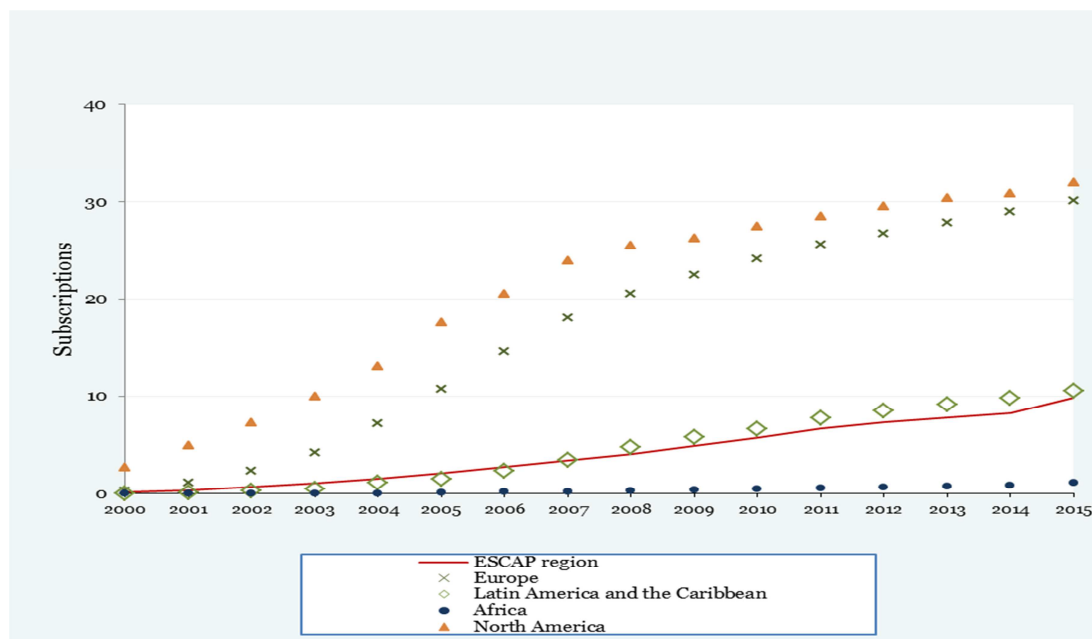
Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

B. Lagging behind in fixed broadband penetration

22. However, when weighted by population, the number of fixed broadband subscriptions per 100 inhabitants in the ESCAP region is lower than Latin America and the Caribbean region, and far lower than Europe and North America which scored more than 25 subscriptions per 100 inhabitants, the world average being 11.2 in 2015 (see figure II).

23. Hence, despite the increase in the total number of fixed broadband subscriptions, there is relatively slow growth in Asia and the Pacific.

Figure II
Fixed broadband subscriptions (average), 2000-2015
 (Per 100 inhabitants)



Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

C. Fixed broadband subscriptions: 75 per cent in East and North-East Asia, driven by China¹⁵

24. When analysed by ESCAP subregion, it becomes clear that the total number of fixed broadband subscriptions in 2015 derives predominantly from East and North-East Asia (75 per cent), followed by South and South-West Asia (10 per cent), North and Central Asia (8 per cent), South-East Asia (6 per cent) and the Pacific (1 per cent). In 2014, East and North-East Asia recorded 69 per cent, followed by South-East Asia (11 per cent), South and South-West Asia (10 per cent), North and Central Asia (8 per cent) and the Pacific (2 per cent), illustrating an intensified concentration in East and North-East Asia. When the total number of fixed broadband subscriptions is

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